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Ms. Jessica Priest
Victoria Advocate
311 East Constitution
Victoria, TX 77901

Via E-mail: jpriest@vicad.com

Re: Texas Public Information Act Request of Feb 15, 2019 ("Request")

Dear Ms. Priest:

On behalf of the Port O'Connor Improvement District, please let this letter respond to the Request, received via electronic mail to the District on February 15, 2019.

As you requested, we are transmitting copies to you electronically. Attached is a copy of the report John Mercer presented to the District's Board of Directors at its February 12, 2019 Meeting for Agenda Item No. 10.

Sincerely,

WALKER KEELING LLP

Donna Grafe-Tucker

Donna Grafe-Tucker

cc: Erny McDonough, President
Evangelina Trevino, Office Manager
Port O'Connor Improvement District
P.O. Box 375
Port O'Connor TX 77982

PORT O'CONNOR IMPROVEMENT DISTRICT

WATER SUPPLY CAPACITY CALCULATION – DEC 2018

GBRA SUPPLY TO POCID -	1,044,000 GPD	725 GPM
EXISTING APPROVED WELL CAPACITY		200 GPM
TOTAL APPROVED CAPACITY		925 GPM
RESERVED CAPACITY TO LASALLE		100 GPM
NET CAPACITY APPROVED FOR POCID		825 GPM

POCID APPROVED ALTERNATIVE CAPACITY REQUIREMENT		0.38 GPM/CONN
TOTAL PERMISSIBLE CONNECTIONS FOR POCID	825/0.38 =	2,171 CONN
POCID CURRENT CONNECTIONS		1,786 CONN
POCID REMAINING CONNECTIONS		385 CONN
JANUARY 2017 CONNECTIONS PER G&W		1,725 CONN
12 MONTH INCREASE	1,786 – 1,725 =	61 CONN
SUPPLY BUILD-OUT TIME AT CURRENT DEVELOPMENT RATE	385/61 =	6.3 YEARS

LASALLE CAPACITY REQUIREMENT	0.60 X 1.15=	0.69 GPM/CONN
TOTAL PERMISSIBLE CONNECTIONS FOR LASALLE	100/0.69 =	145 CONN
LASALLE CURRENT CONNECTIONS		98 CONN
LASALLE REMAINING CONNECTIONS		47 CONN
JANUARY 2017 CONNECTIONS PER G&W		85 CONN
12 MONTH INCREASE	98 – 85 =	13 CONN
SUPPLY BUILD-OUT TIME AT CURRENT DEVELOPMENT RATE	85/13 =	6.5 YEARS

REPORT TO PORT O'CONNOR IMPROVEMENT DISTRICT
February 12, 2019
Potential to Conversion from GBRA to RO Treated Well Water

On behalf of the Board, I have evaluated the potential for converting the POCID potable water system from a primary dependence on purchasing treated surface water from the Guadalupe Blanco River Authority (BGRA) to a total utilization of well water that is treated by the reverse osmosis process.

I have researched the water quality of several wells in the POCID area, including the POCID "offsite" well located approximately 1,200 feet west of the District office. This well has a current rating by TCEQ of 200 gallons per minutes (GPM) but has an actual capacity of approximately 250 GPM. The well is screened for production at a depth of approximately 195 feet to 220 feet. The Total Dissolved Solids (TDS) in the raw well water is approximately 1,466 mg/L and the Chlorides is approximately 649 mg/L. These constituent concentrations are typical of the 16th Street well and other wells in the POCID area that are of similar depth (195' – 220').

The 750 GPM well located at the District Office bypassed the 195' – 220' sand and was screened for production at deeper elevations. An analysis of this well was performed by BESST, Inc. and a recommendation was made to block off three of the sands that were screened that had the highest levels of TDS and chlorides. The remaining well production was estimated to be only 375 GPM with the TDS at 3,156 mg/L and the chlorides at 1,731 mg/L. These levels of concentration are significantly higher than the water from the 195' – 220' stand.

Our analysis of the GBRA invoices for 2018 shows that POCID paid on average $2.74 per thousand gallons of treated water purchased from GBRA. Approximately $0.29/1000 gallons was for debt service, leaving the treated water cost at approximately $2.05/1000 gallons without a debt service component.

Should POCID elect to continue to purchase water as their primary source, including participation in the funding of the proposed new treatment plant, the debt service component of the water cost will increase significantly. POCID will be required to fund amortization of 16% - 20%, or more, of the total plant cost of $60 million to $80 million. The annual debt service payment on 16% of $60 million would be approximately $720,000 per year. Based on the 2018 treated water purchase of 121,241,000 gallons, this would equate to a debt service burden of approximately $5.94/1000 gallons of purchased treated water. As indicated in the recent report given to the Board by the engineer for GBRA, the operation and maintenance cost of the treated water from the new plant will increase due to additional treatment that is not currently being performed. The cost of treated water purchased by POCID from the new GBRA plant could be over $7.99/1000 (2.05 + 5.94) gallons. Such a cost will require a major increase in water rates if it is covered totally from water system revenue.

The alternative to staying with GBRA is for POCID to provide locally obtained groundwater that is treated as required to meet TCEQ concentration limits for secondary constituents such as TDS and chlorides. The preferred method of treatment for ground water that exceeds the limits on TDS and chlorides is by the reverse osmosis process. Obtaining sufficient ground water to supply POCID well into the future will require drilling at least four (4) new wells of similar or greater capacity than the District's "off-site" well. The depths at the new wells would be the same and it is anticipated that the constituent concentrations would be similar.

Attached is a preliminary budget for a project to drill four new water wells and construct a reverse osmosis treatment facility for POCID. The total budget for such a project is approximately $4.5 million. By comparison, the District's proportional debt responsibility for a new GBRA treatment plant could be

over $8.0 million or up to $15.0 million depending on the location of the new plant and the final construction cost.

The cost of treating ground water by reverse osmosis, not including labor cost, is approximately $0.50/1000 gallons. Having an RO facility will probably require at least one additional licensed operator on the District payroll at a cost of $60,000 per year or $0.495/1000 gallons based on 2018 water use. Therefore, the cost of treated water, not including debt service would be approximately $1.00/1000 gallons.

Following is a comparative summary of the operation and maintenance costs and the debt service cost of the two alternatives discussed above.

	POCID Wells & RO (for 121,241,000 Gallons)		GBRA Supply (2018 Use)	
Operation & Maintenance (including labor)	$1.00	/1000 gallons	$2.74	/1000 gallons
Debt Service	$2.78	/1000 gallons	$4.95	/1000 gallons
Total Cost of Water	$3.78	/1000 gallons	$7.69	/1000 gallons
Total Annual Cost	$458,291	/year	$932,343	/year
Potential Cost Savings	$474,000	/year		

From the above analysis of the two alternatives, it is recommended that POCID seriously consider the option to plan for construction of a local well field and reverse osmosis treatment facility and to cease purchasing treated surface water from GBRA at an appropriate time.

John D. Mercer, PE, No. 40374
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Texas Registered Engineering Firm No. F-14

STATE OF TEXAS
JOHN D. MERCER
40374
REGISTERED
PROFESSIONAL ENGINEER

PORT O'CONNOR IMPROVEMENT DISTRICT
WELL WATER AND REVERSE OSMOSIS TREATMENT PRELIMINARY COST ESTIMATE

	QUANTITY	UNITS	UNIT COST	TOTAL COST
NEW WATER WELL, 240 FEET DEEP, 250-300 GPM	4	EA	$ 250,000.00	$ 1,000,000.00
WELL ELECTRICAL AND CONTROLS	4	EA	$ 35,000.00	$ 140,000.00
SCADA	1	EA	$ 50,000.00	$ 50,000.00
WELL SITE IMPROVEMENTS	4	LS	$ 8,000.00	$ 32,000.00
WELL COLLECTION LINES	6000	LF	$ 60.00	$ 360,000.00
100,000 GALLON GROUND STORAGE TANK	1	LS	$ 150,000.00	$ 150,000.00
PRE-TREATMENT	1	LS	$ 350,000.00	$ 350,000.00
REVERSE OSMOSIS EQUIPMENT	1	LS	$ 1,200,000.00	$ 1,200,000.00
RO BUILDING (20'X50')	1000	SF	$ 140.00	$ 140,000.00
YARD PIPING	1	LS	$ 40,000.00	$ 40,000.00
MISCELLANEOUS	1	LS	$ 40,000.00	$ 40,000.00
			y	
				$ 3,502,000.00
15% CONTINGENCY				$ 525,300.00
CONSTRUCTION BUDGET				$ 4,027,300.00
ENGINERING (11.5%)				$ 463,139.50
TOTAL PROJECT BUDGET				$ 4,490,439.50